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ABSTRACT

Data for this evaluation of the District of Columbia Public Schools (DCPS) School Library Resources Program as operated during the 1983-84 school year were collected via surveys of library media specialists and teachers. The stated objectives of the program scheduled for attainment by June 1984 called for planning a pilot program for computer-managed library-media services; the implementation of an average of three of the services in the four pilot senior high school library media centers; and planning for and establishment of High-Tech Science and Mathematics Information Banks in at least 80% of the library media centers. Findings indicated that the project coordinator and an advisory group of library media specialists had researched materials and recommended selection criteria for the project; the seven potential computerized services to be established were file maintenance operation, book circulation, records of overdue fines and fees, collection reporting, reading lists, cataloging and bibliographic retrieval, and patron recordkeeping; the project plan had been developed but, due to difficulties in ordering the computers, the pilot program in the four schools did not take place; a 21-page core list of materials appropriate for a mathematics/science information bank had been developed; and library media specialists had submitted plans for their banks but materials ordered did not arrive until the end of the school year. This report describes the project, the design of the evaluation methodology, and evaluation results. Extensive appendixes include questionnaires and summaries of results. (THC)

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PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA

SCHOOL LIBRARY RESOURCES PROGRAM

FINAL REPORT

1983-1984

Prepared by
Division of Quality Assurance

1983-1984

SCHOOL LIBRARY RESOURCES PROGRAM

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Stated Objectives

A: By June of 1984, the School Library Resources Program will have planned a pilot program for computer-managed library-media services, and will have implemented an average of three of the services in the four pilot senior high school library-media centers in the DCPS.

B: By June of 1984, the School Library Resources Program will have planned for High-Tech Science and Mathematics Information Banks and will have established the banks in at least 80% of the library-media centers.

Evaluation

The evaluation follows the Planning, Monitoring, and Implementing (PMI) Evaluation Model for Decision-Making which was developed by the Division of Quality Assurance, District of Columbia Public Schools.

Findings

1. The project coordinator and an advisory group of library-media specialists researched materials and recommended selection criteria for the project.

2. The seven potential computerized services to be established were file maintenance operation, book circulation, records of overdue fines and fees, collection reporting, reading lists, cataloging and bibliographic retrieval, and patron recordkeeping.

3. The plan for the project was developed but due to difficulties in ordering the computers, the pilot program in the 4 schools did not take place.

4. A group of library-media specialists assisted the project coordinator by checking catalogs, examining materials on display, noting recommendations of other staff, and recording the information on cards which was later developed into a 21 page core list of materials appropriate for a mathematics/science information bank. The list was distributed to all library-media specialists.

5. Library-media specialists in all schools submitted plans for their banks, including creative ways to encourage greater teacher use.

6. Materials ordered did not arrive until the end of the school year. Although few library-media specialists were able to establish their banks during the 1983-84 school year, many of them reported that they were excited about the materials and planned to use them during the 1984-85 school year.

SUMMARY AND FINDINGS

Title

School Library Resources

Project Coordinators

Marie Harris

Project Location

Wilkinson Elementary School
Pomeroy Road and Erie Street, S.E.
Washington, D.C.

Background

Before ECIA, Chapter 2 was established in 1982, Federal funding for improvement of libraries was provided (since 1965) under the Elementary and Secondary Education Act, originally Title II and amended in 1978 to Title IV-B. During the 1982-83 year, under Chapter 2, the emphasis was on updating the library services and encouraging greater teacher use of the library-media centers. To accomplish these ends, the project provided books and other library-media materials, technical assistance, workshops and inservices, and motivational devices to encourage good use of the centers as well as recognition by schools of their importance. During the 1983-84 year, the emphasis was in two different areas. The first involved a pilot program for computer-managed library-media services. The second emphasis was on the establishment and use of High Tech Science and Mathematics Information Banks in all school library-media centers.

Description of Project

The purpose of the School Library Resources Program was to provide direct support to local schools in their efforts to maintain high quality library-media resources as a part of their instructional program. The program for computer-managed library-media services was designed to be in four pilot high schools, one in each region to serve as models for future expansion. The seven computer-managed media services being considered were as follows: file maintenance operations, book circulation, records of overdue fines and fees, collection reporting, reading lists, cataloging and bibliographic retrieval, and patron record-keeping. The High Tech Science and Mathematics Banks were to be established in all schools with suggested materials based on recommendations from teachers, mathematics and science coordinators and library-media specialists.

BACKGROUND AND DESCRIPTION

Introduction

Purpose - The purpose of the SCHOOL LIBRARY RESOURCES PROGRAM was to provide direct support to local public and non-public schools in their efforts to develop and maintain high quality library and media resources as an adjunct to their instructional programs.

Need - In order to meet the mission of the D.C. Public Schools of promoting excellence through a strong instructional program, it is necessary for students and teachers to have readily available, sufficient, adequate and up-to-date resources and materials. Such support can be provided through well stocked library media centers, especially in the areas of science and mathematics. Another way is by making use of technological advances such as computers.

History - Title II of the Elementary and Secondary Education Act of 1965 P.L. 89-10, provided grants to states for school library resources, textbooks, and other instructional materials. Report No. 143 submitted to the House of Representatives, 89th Congress, 1st session, by Mr. Powell of the Committee on Education and Labor, contained the following statement:

> The Commissioner of Education, commenting on the importance of the school library, subscribed to the view that the school composed chiefly of classrooms is obsolete and that in schools of the future, upward of half of the student's time may be spent in the library, in science laboratories, or in other workrooms where he can search for knowledge, analyze data, reflect upon ideas which he is encountering, and put his hunches and conclusions in writing. (p. 9.)

In the Education Amendments of 1978, H.R.15, P.L. 93-380, Title IV of the Elementary and Secondary Education Act consolidated former educational programs into two parts: Library and Learning Resources (Part B) and Educational Innovation and Support (Part C). Title IV-B in the District of Columbia was administered treating each of the regions as a local education agency (L.E.A.).

In October 1981, The School Media Program in the District of Columbia - Guidelines for Its Operation, was completed having been prepared by the Department of Library Science, the Educational Media Center and the District of Columbia Association of School Librarians. Writing teams of school librarians had been organized in January, 1975 to bring together in one publication, guidelines and statements of purpose of the school library's media program in the District of Columbia. Included in the guidelines were a comprehensive five year plan and suggested quantitative standards for media material and equipment.

Supplementary funding for libraries under ESEA Title IV-B ended in 1982 when ESEA was discontinued. However, the School Library Resources Program, in its present form was included by the DCPS in the ECIA Chapter 2 block grant beginning during the 1982-83 school year. During that year the emphasis was on updating the library services and encouraging greater teacher use of the library-media centers. Both of these aims were met during that year.

Description of the Project

Target Population - The target population consisted of District of Columbia public and non-public school teachers, public school library-media specialists and their counterparts in non-public schools.

Staffing - During this second year of operation, the only staff member funded by the project was the secretary. However, Library and Media Center directors, librarian-media specialists, subject matter coordinators, teachers and clerical help, paid for with regular budget funds, participated in the program.

Program - Although the program emphases shifted during the second year of the project, the general purpose remained the same - i.e. to help develop and maintain high quality library and media resources. The portion of the program related to computer-managed library-media services was designed to provide an exemplary management model for future library applications in all DCPS library media centers. By starting with four pilot schools, it was hoped to discover problems and resolutions to them before expanding to the rest of the District. The plan for the program included researching software and hardware, selecting pilot schools, training participants and beginning to implement the program.

The portion of the project related to the establishment of High-Tech Science and Mathematics Information Banks was designed to provide "immediately ready reference" information banks for local school personnel (administrators, teachers, students and parents). This was to be accomplished through collecting suggestions for inclusion of items from teachers, subject matter coordinators, and library-media specialists; compiling and distributing a core list of items to be included in the bank; ordering materials; and encouraging their use.

EXTERNAL EVALUATION DESIGN - PLANNING, MONITORING AND IMPLEMENTING (PMI) EVALUATION MODEL FOR DECISION-MAKING

The evaluation follows the Planning, Monitoring, and Implementing (PMI) Evaluation Model for Decision-Making which was developed by the Division of Quality Assurance, District of Columbia Public Schools. (See Appendix A.) The evaluation design which was developed at the beginning of the project year, consisted of the intended inputs, processes and outcomes on specially designed status report forms. The interim report distributed at the mid-point of the project cycle related, on the status report forms, agreements or discrepancies between intended and observed inputs and processes. This final report includes the interim report data brought up to date, plus the agreements and discrepancies between intended and observed outcomes for each objective. Supporting data are included in the appendix. Preceding the PMI status report forms is the results section which summarized the agreements and discrepancies for each objective and states a general conclusion.

RESULTS

Evaluation Results - Narrative Summary

The results of the evaluation are summarized in this section. Following the narrative are the inputs, processes and outcomes on which this summary is based, presented in the PMI reporting format. Supporting data are in the appendix.

Objective A: By June of 1984, the School Library Resources Program will have planned a pilot program for computer-managed library-media services, and will have implemented an average of three of the services in the four pilot senior high school library-media centers in the DCPS.

There were no discrepancies between observed and intended inputs. Personnel inputs included the project manager, coordinator and secretary; library-media specialists serving on the advisory group and working in the four participating schools; regional superintendents, principals of participating schools, computer company representatives, and contact persons from other areas providing help such as the District of Columbia Public Library and the DCPS Division of Information Resource Management. Other inputs were informational material on computer software and hardware, funds budgeted for the four computers, adequate materials and supplies, evaluation questionnaires, adequate planning space and four selected library-media centers with adequate space for computers.

Six of the 11 processes showed agreement between the observed and intended items while five showed discrepancies. The six that were in agreement were planning items such as researching materials to locate software packages and computers to meet established criteria (compatability with desired software and ability to be upgraded through modems); meetings of the advisory group; selection of participating schools; and exploration of modern connections with Ballou, UDC and D.C. Public Library Computing systems. The processes that were in discrepancy were all based on the computers being installed. There were some problems involved in ordering computers, they were not purchased and thus discrepancies were found in the areas of staff orientation and training technical assistance, maintenance, implementation of the program and completion of evaluation questionnaires.

Where there was performance agreement between processes and the outcome (activities in preparation, for planning), there was also agreement between the observed and intended outcome. Where performance agreement between processes and the outcome was lacking (i.e., installation of computers and training of participants in their use, for implementation) there was a discrepancy between the observed and intended outcome. The plan for a pilot program for computerizing senior high school library media centers was developed. The plan was not implemented. Thus, the objective was partially met.

Objective B: By June of 1984, the School Library Resources Program will have planned for High-Tech Science and Mathematics Information Banks and will have established the banks in at least 80% of the library-media centers.

There was one discrepancy between observed and intended inputs. Because of time limitations, the project coordinator was unable to determine the location of other school districts with High-Tech Mathematics and Science Information Banks. All others showed agreement between intended and observed inputs. In addition to those in Objective A, included were all DCPS library-media specialists, mathematics and science coordinators and directors, principals and other school staff members and vendors of mathematics and science materials. The formula for allocation of funds was determined to be $1.75 per pupil. Other inputs included materials, record sheets, evaluation questionnaires and adequate space for planning and for setting up banks.

Of the 14 processes, 12 were in agreement, one was in partial agreement and one had a discrepancy between intended and observed items. The discrepancy followed the logical agreement between input and process on the item concerning seeking information from other school districts with similar banks. The items showing agreement included surveying school and regional staff for suggestions for materials; compilation and distribution of core list of items for inclusion in banks, orientation meeting and media exhibit of materials with vendor demonstrations; library-media specialist writing of plans for banks; funds allocated to schools based on number of students enrolled; dissemination of project information to their staffs by library-media specialists; the ordering of materials and the completion of evaluation forms. The one item that was in partial agreement was that after receiving materials library-media specialists would encourage and record teacher usage of the bank. Due to materials not arriving until the end of the school year, library -media specialists were generally unable to put into practice the ideas they had previously submitted to the project coordinator on encouraging use of the banks.

The late arrival of materials also affected the outcomes of this objective. The first outcome which was concerned with individual school plans for the establishment of the banks showed a status of agreement. Completed plans were submitted to the project coordinator. Responses to a request asking library-media specialists how they planned to use the banks brought a wide range of creative responses. The second outcome, however, on the establishment of the banks, showed a discrepancy due to the late arrival of the materials. Less than half of the banks were set-up although library-media specialists were excited about the materials and prepared to use them as planned during the following year. Thus, with one of the outcomes with agreement and one with discrepancy, the objective was partially met.

Conclusion

This project had two phases for each of its objectives - a planning phase and an implementing one. In both cases the planning was carefully and thoroughly carried out but due to problems in the acquisition of the required materials, neither objective was fully implemented. It is recommended that the objectives be considered for implementation next year.

Decisions

This report will be forwarded to the Project Director, Project Manager, LEA Chapter 2 Director, the Superintendent and the School Board to aid them in their decision-making concerning this project.

FINAL EVALUATION REPORT

PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

Goal: To provide direct support to local schools in their efforts to develop and maintain high quality library and media resources as an adjunct to their instructional programs

Objective A: By June of 1984, the School Library Resources Program will have planned a pilot program for computer-managed library-media services, and will have implemented an average of three of the services in the four pilot senior high school library-media centers in the DCPS.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
a. Project Manager	Agreement	a. Library and media services were assigned to the new Division of Educational Technology, according to a memo from the DCPS Superintendent of Schools. The head of the division became the project manager.
b. Project Coordinator	Agreement	b. As verified by the project manager, the Assistant Director of Library Services was appointed project coordinator of the Library Resources Program in addition to her other duties.
c. Secretary	Agreement	c. A secretary was hired for the project and was observed working on Library Resources Program material.
d. Advisory Group of library-media specialists	Agreement	d. The advisory group consisted of representative library-media specialists, as listed on a roster in the project office.

OBJECTIVE A

PART I (continued)

INPUTS

INTENDED	STATUS	OBSERVED
e. Library-media specialists in the four participating schools	Agreement	e. The project coordinator gave the evaluators the names of the seven library-media specialists in the four participating schools (Ballou, Coolidge, Cardozo and Woodson). In addition Banneker and Spingarn were to receive computers from another source (Public Library Federal Grant for Innovative Projects) and their library-media specialists were to be included in some of the activities.
f. Regional superintendents	Agreement	f. Regional superintendents signified their cooperation by selecting schools for the project.
g. Principals of the four participating schools	Agreement	g. Principals signified their cooperation by agreeing to the criteria in the project coordinator's letter.
h. Representative of the company whose computer is to be used	Agreement	h. The computer selected was the IBM; the representative wrote a draft proposal based on district needs; the proposal was on file in the project office.
i. Contact persons from Ballou Computer Center, DIRM, UDC and the District of Columbia Public Library	Agreement	i. The project coordinator provided evaluators with a list of names of contact persons.

OBJECTIVE A

PART I (continued)

INPUTS

INTENDED	STATUS	OBSERVED
j. Catalogues and other informational material on computer software and hardware	Agreement	j. Material examined included science books and films, Taylor's Computer Books, Taylor's Software catalogue and copies of journal articles.
k. Funds budgeted for four computers, computer guides, software compatible with the computers and modem hookups	Agreement	k. The funds were budgeted as indicated in budget item 702 for computers and related materials. The budget was examined by the evaluator.
l. Adequate materials and supplies for meetings and other project needs	Agreement	l. The project coordinator verified that materials and supplies were adequate.
m. An evaluation questionnaire for participating library-media specialists	Agreement	m. The questionnaire was developed in collaboration with members of the ECIA Chapter 2 Evaluation Unit.
n. Adequate planning space	Agreement	n. The planning space was observed to be very adequate.
o. Four library-media centers (one in each region), with adequate space for computers	Agreement	o. One of the criteria for selection of centers was adequate space. Evaluation staff observed that this criterion was met.

OBJECTIVE A

PART II

PROCESSES †

INTENDED	STATUS	OBSERVED
1.1 The project coordinator will research materials to locate software packages that include library-media management functions.	Agreement	1.1 The project coordinator contacted the National Science Foundation, who referred her to journals and sent sample copies to help locate the software packages. She examined the information and talked to experts in the field.
1.2 The project coordinator will research materials to locate computers which meet the following criteria: a. Are compatible with the desired software; b. Can be upgraded through modems (telephone hookups to other computers).	Agreement	1.2 After determining that the IBM - PC XT was most appropriate, the project coordinator asked the representative to examine the software requirements. He extrapolated hardware peripherals that would make the IBM compatible. The communication adaptor is asynchronous (can be upgraded through modems).
1.3 An advisory group of library-media specialists will confer with the project coordinator to decide on selection criteria in determining the participating schools.	Agreement	1.3 The advisory group was meeting once a month prior to the Library Services Office move to a different location. Meetings started again in February. During the meetings held in late September and early October, the group agreed on criteria to be included in a letter to principals. The advisory group wanted to have a program in every senior high school but since funds were not available, the decision was made to have one in each region. However, through an arrangement with the public library, 17 senior high schools and career development centers were to have terminals.

† Processes numbered to correspond with outcomes

OBJECTIVE A

PART II (continued)

PROCESSES †

INTENDED	STATUS	OBSERVED
1.4 The project coordinator will draft and send a letter to the regional superintendents advising them of the project and asking each of them to select one school based on the pre-determined criteria.	Agreement	1.4 Evaluator examined a copy of the letter sent to the regional superintendents asking for their recommendations for project schools.
1.5 The project coordinator will explore the feasibility of modem connection with the Ballou Computer lab for use of the SAT tutorial package.	Agreement	1.5 The project coordinator discussed the idea with personnel at Ballou. PSAT practice programs were to be available after some debugging which was to be done when the modem was ready.
1.6 The project coordinator will explore the possibility of modum connection capability with UDC and the District of Columbia Public Library Computing systems.	Agreement	1.6 The project coordinator stated that she did explore these possibilities. There are a few problems such as space availability and reprogramming requirements, but the modem connection capability does exist.
2.1 The library-media specialists of the participating schools will attend an orientation meeting to familiarize them with the seven potential services to be established as follows: File maintenance operation, book circulation, records of overdue fines and fees, collection reporting, reading lists, cataloging and bibiographic retrieval, and patron record-keeping.	Discrepancy	2.1 On March 13th, the seven librarian-media specialists from the pilot schools plus those from Banneker and Spingarn, and a few other interested personnel had a half-day hands-on session with the chief of Technical Services at the Census Bureau, in preparation for their programs. However, since the machines were not installed during the school year, the specific orientation did not take place.

† Processes numbered to correspond with outcomes

OBJECTIVE A

PART II (continued)

PROCESSES †

INTENDED	STATUS	OBSERVED
2.2 After the machines are installed, library-media specialists from each of the participating schools will attend a workshop taught by a representative of the company whose computers are being used.	Discrepancy	2.2 The project coordinator had a schedule of times that participants could attend, at the IBM computer headquarters store after computers were installed. They could attend as often as necessary until they felt comfortable with the equipment. However, this did not take place since the computers were not installed.
2.3 After consulting the guides provided, if technical assistance or machine maintenance are needed, the project coordinator will advise on the appropriate person (computer company representative, DIRM consultant or DCPS maintenance person) to be contacted.	Discrepancy	2.3 This process was written into the maintenance contact of the proposal, a copy of which was provided to the Evaluation Unit. Since no computers were installed, this was not applicable.
2.4 The library-media specialists will begin implementation of the program.	Discrepancy	2.4 Without equipment, implementation did not begin.
2.5 Participating library-media specialists will complete an evaluation questionnaire.	Discrepancy	2.5 Questionnaires were not distributed since the program was unable to start.

† Processes numbered to correspond with outcomes

OBJECTIVE A

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. By June, 1984, a plan of action submitted to the ECIA Chapter 2 Evaluation Unit by the School Library Resources Program project coordinator, will show that a pilot program for computerizing senior high school library media centers has been developed.	Agreement	1. The plan of action developed by the project coordinator included the activities listed under "processes" for this objective. The plan was developed although it was not possible to carry out all of the activities without having the equipment.
2. By June, 1984, records submitted to the ECIA Chapter 2 Evaluation Unit by the School Library Resources Program project coordinator, will show that the four high school library-media center pilot programs have implemented an average of at least three of the following seven computer-managed media services: file maintenance operations, book circulation, records of overdue fines and fees, collection reporting, reading lists, cataloging and bibliographic retrieval and patron record-keeping.	Discrepancy	2. Because of difficulties in ordering the computers, the program did not take place in the four pilot schools as planned.

FINAL EVALUATION REPORT

PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

Goal: To provide direct support to local schools in their efforts to develop and maintain high quality library and media resources as an adjunct to their instructional programs

Objective B: By June of 1984, the School Library Resources Program will have planned for High-Tech Science and Mathematics Information Banks and will have established the banks in at least 80% of the library-media centers.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
Inputs a through d are the same as in Objective A. Please see page 1.		
e. All DCPS library media specialists	Agreement	e. The project coordinator had a list of names of library-media specialists. They indicated their cooperation by completing required forms.
f. DCPS regional and district mathematics and science coordinators and directors	Agreement	f. The project coordinator had the names of mathematics and science coordinators and directors. They signified their interest in the program through telephone contacts and at meetings.
g. Principals and staff members (math/science teachers in secondary schools, general and math/science resource elementary teachers) of DCPS	Agreement	g. Principals and math/science teachers indicated their interest in the project by attending an orientation meeting in October, 1983.
h. Vendors of mathematics and science materials	Agreement	h. Twelve vendors exhibited at the orientation meeting as verified by a roster. Others indicated a willingness to display their materials.

OBJECTIVE B

PART I (continued)

INPUTS

INTENDED	STATUS	OBSERVED
i. Formula for allocation of funds for ordering project materials	Agreement	i. The formula as observed on records, was $1.75 per pupil based on the 1982-83 enrollment.
j. Mathematics and science materials such as models, robotics (reprogrammable teaching manipulatives), computer software, films, filmstrips, videotapes, books, journals and catalogues	Agreement	j. The information sheets from library-media specialists, and the order sheets examined showed that materials such as mathematics and science books; filmstrips; kits from National Geographic; models of human torsos, ears, eyes and plants; and computer diskettes were ordered.
k. Distribution sheets containing program summary and purposes	Agreement	k. Distribution sheets were included in the packet of material given to library-media specialists. The packet was examined by the evaluator.
l. Record sheet for library-media specialists to list cost of materials desired, staff involved in evaluation and selection of media, and plan for use of materials	Agreement	l. Completed record sheets were examined by the evaluator.
m. Adequate materials and supplies	Agreement	m. The project coordinator verified that materials and supplies were adequate.
n. Library-media specialist evaluation questionnaire	Agreement	n. Questionnaires were developed by members of the ECIA Chapter 2 Evaluation Unit with input from the project coordinator. (See Appendix B)
o. Teacher evaluation questionnaire	Agreement	o. Questionnaires were the same as those used in the previous year. (See Appendix B)

OBJECTIVE B

PART I (continued)

INPUTS

INTENDED	STATUS	OBSERVED
p. Other school districts with High-Tech Mathematics and Science Information Banks	Discrepancy	p. The project director planned to discuss with mathematics and science coordinators, and with personnel in the DCPS Research Information Center, ways of locating names of other school districts with high-tech banks, but was unable to do so because of time limitations.
q. Adequate planning space	Agreement	q. Planning space was observed to be very adequate.
r. Adequate space in library-media centers to set up banks	Agreement	r. Library-media specialists indicated on the information sheets they submitted, what and how they were allocating space to this project.

OBJECTIVE B

PART II

PROCESSES †

INTENDED	STATUS	OBSERVED
1.1 Members of the Library-Media Specialists Advisory group will ask mathematics and science teachers and other interested staff in their schools for suggestions for materials for inclusion in the High-Tech Mathematics and Information Banks to be established, and will submit the suggestions to the project coordinator for inclusion in a master list.	Agreement	1.1 The project coordinator verified that members of the Library-Media Specialists Advisory group surveyed staff in their schools in September for suggestions for materials.
1.2 The project coordinator will contact DCPS regional and district mathematics and science coordinators and directors for suggestions for materials for inclusion in the banks.	Agreement	1.2 The project coordinator verified that she surveyed mathematics and science coordinators for recommended materials.
1.3 The project coordinator will compile and distribute a suggested core list of items to be included in the banks.	Agreement	1.3 A group of library-media specialists worked in the Library Services headquarters. They went through catalogues, examined materials on display, noted recommendations of other staff and put the information on cards. This was later typed onto a 21 page list which was examined by the evaluator. The core list was distributed to library-media specialists.
1.4 Library-media specialists and math/science resource teachers will attend an orientation meeting and media exhibit of science and mathematics materials.	Agreement	1.4 The meeting was held on October 24 as verified by memo, agenda and roster. (See Appendix C).

† Processes numbered to correspond with outcomes

PART II (continued)

PROCESSES †

INTENDED	STATUS	OBSERVED
1.5 At the media exhibit vendors will demonstrate math/science materials.	Agreement	1.5 Vendors demonstrated math/science materials as indicated on agendas and verified by the project coordinator.
1.6 The project coordinator will seek information on other school districts with High-Tech Mathematics and Science Information Banks, as a basis for further planning.	Discrepancy	1.6 This was not done due to time limitations.
1.7 Library-media specialists will write their plans for development of individual banks using information disseminated by the Project Coordinator.	Agreement	1.7 Tentative plans for banks as submitted by participants to the project coordinator, were examined by the evaluator.
2.1 The project coordinator will allocate funds to all schools based on a predetermined formula.	Agreement	2.1 Funds were allocated with allotments based on $1.75 per pupil. Evaluator was provided with a list naming each school and total amount of allotment.
2.2 Library-media specialists will meet with their administrators and staff to discuss the program summary and purposes, and to determine whether any special mathematics or science projects are planned for the year.	Agreement	2.2 The project coordinator provided library-media specialists with an open letter drafted to teachers concerning the project. They were encouraged to reproduce it or send it around on a clip board. Most of them reproduced it. The record sheets, submitted by library-media specialists and examined by the evaluator, contained a place to indicate names of persons with whom projects were discussed.

† Processes numbered to correspond with outcomes

OBJECTIVE B

PART II (continued)

PROCESSES †

INTENDED	STATUS	OBSERVED
2.3 Based on the distributed core list and individual school needs, schools will identify materials, compute costs (not to exceed allocated funds), adhere to procedures for ordering, prepare orders and send completed list to the project coordinator.	Agreement	2.3 Record sheets submitted to the project coordinator were examined by the evaluator, and it was noted that schools followed the requirements for ordering materials.
2.4 With approval of the project manager, project coordinator will order materials.	Agreement	2.4 All orders were submitted by January 31, 1984. Because of a back-up in procurement, orders were late in being processed. To help speed up the processing, the program assistant for the Library Department was detailed for 8 weeks to help in procurement. However, most materials were not received by the library-media specialists until June.
2.5 After receiving materials, library-media specialists will encourage and record teacher usage of the bank.	Partial Agreement	2.5 Some of the library-media specialists indicated on their record sheets how they intended encouraging and recording teacher use of the bank. However, due to the late arrival of materials, many were unable to follow through. Several commented on evaluation forms that they were excited about the materials and planned to encourage teacher use in the fall.

† Processes numbered to correspond with outcomes

OBJECTIVE B

PART II (continued)

PROCESSES †

INTENDED	STATUS	OBSERVED
2.6 Library-media specialists will complete an evaluation form on the establishment of the bank.	Agreement	2.6 Forms were sent to a 25% random sample of 44 library-media specialists. Completed forms were returned by 28 and 2 blanks. For grade level breakdown, see Appendix D.
2.7 A random sampling of elementary school general teachers, math/science resource teachers and secondary school mathematics and science teachers will complete an evaluation form on their use of the bank.	Agreement	2.7 Forms were sent to the 44 library-media specialists to be distributed to a total of 1,143 teachers. Completed forms were received from 27 schools, 287 teachers. For a grade level breakdown, see Appendix D.

† Processes numbered to correspond with outcomes

OBJECTIVE B

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. By June, 1984, a plan of action submitted to the ECIA Chapter 2 Evaluation Unit by the School Library Resources project coordinator, will show that individual school plans for the establishment of High-Tech Science and Mathematics Information Banks in library-media centers, have been developed.	Agreement	1. Individual schools developed their plans as verified by examination of submissions. Responses to the request asking library-media specialists to state how their High-Tech Science and Mathematics Information Banks would be used to promote greater and more effective use of the overall library collection, brought a range of creative responses. (See Appendix E).
2. By June, 1984, an analysis of questionnaires submitted to the ECIA Chapter 2 Evaluation Unit by library-media specialists, and by a sampling of teachers will show that High-Tech Science and Mathematics Information Banks have been established and are in use in at least 80% of the library-media centers.	Discrepancy	2. Planning for the High Tech banks occurred as planned with 70% of the library-media specialists in a random sample of 30 reporting that over half of their acquisitions were in the areas of mathematics and science (see Appendix F). However, the materials ordered did not arrive until the end of the school year. Thus, the questionnaire results concerning establishment and use of the bank showed low percentages. Several of the library-media specialists reported that they were excited about the materials and planned to use them as anticipated, the following year. See Appendix F for complete analysis of library-media specialists questionnaire.

OBJECTIVE B
(continued)

PART III

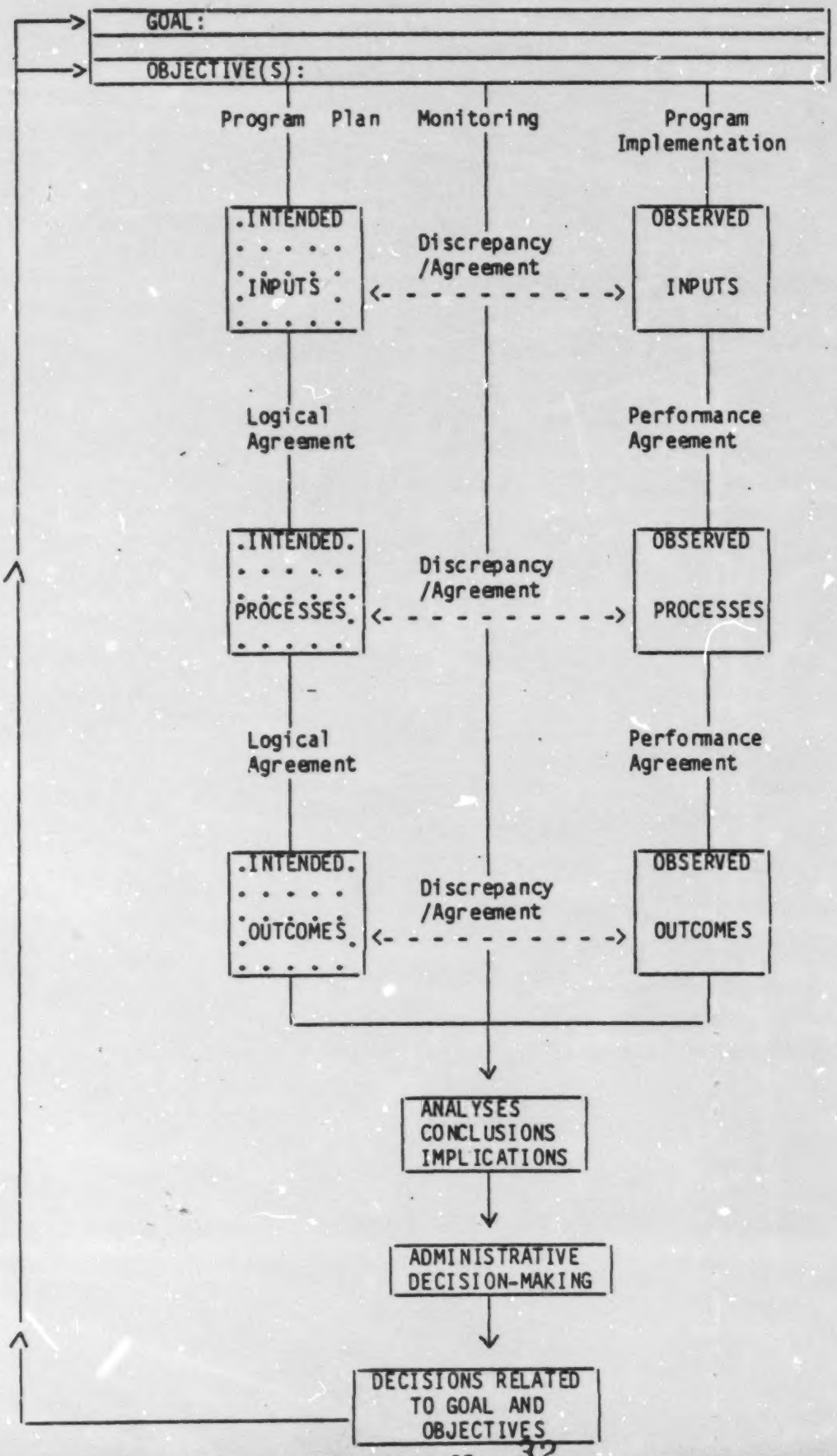
OUTCOMES

INTENDED	STATUS	OBSERVED
	Discrepancy	2. Because the material arrived so late, the majority of the 287 teachers (from a random sample of 30 schools) who completed questionnaires were not aware of the banks and had not used them. (See Appendix G) Other items on the questionnaire were concerned with general use of the library-media center and are also summarized in Appendix G.

APPENDIX A

EVALUATION MODEL SCHEMA

EVALUATION MODEL SCHEMA



APPENDIX B

TEACHER AND LIBRARY-MEDIA SPECIALIST QUESTIONNAIRES

DISTRICT OF COLUMBIA PUBLIC SCHOOLS

School Library Resources Program, ECIA Chapter 2

Teacher Survey

Name of School _____ Date _____

In order to help evaluate the effectiveness of ECIA Chapter 2 funding for the School Library Resources Program, your school has been selected as part of a random sampling of schools to participate in completing a short teacher questionnaire. Please take a few minutes to answer the following questions and return the completed form to your library-media specialist. No names are needed. Thank you for your assistance.

Most of the school library-media centers have been setting up High-Tech Science and Mathematics Information Banks.

1. Have you been aware of such a bank in your school's library-media center?
   Yes ☐ No ☐

2. Have you had the opportunity to use the bank? Yes ☐ No ☐

3. Please rate your use of the library-media center this year.

   More Than Last Year ☐ Same as Last Year ☐ Less Than Last Year ☐

4. Please check in the first column all of the following types of materials that have been available in your library-media center. Please check in the second column all of the following types of materials from the center that you have used this year.

Materials	Available	Used
a. Audio-Visual Teaching aids Except Computers and TV		
b. Books and Related		
c. Computer Hardware and Software		
d. Non-Instructional Machines and Related Materials		
e. TV and Related		
f. Manipulatives		
g. Other (Please specify)		

5. Comments:

AFTER COMPLETING THIS FORM, PLEASE FOLD IT IN HALF, STAPLE IT, AND GIVE IT TO YOUR LIBRARY-MEDIA SPECIALIST.

052274

Prepared by
Division of Quality Assurance

DISTRICT OF COLUMBIA PUBLIC SCHOOLS

School Library Resources Program, ECIA Chapter 2

School Library-Media Specialists Survey

Library-Media Specialist _____ School _____ Date _____

To help evaluate the effectiveness of ECIA Chapter 2 funding for the School Library Resources Program, please complete the following brief questionnaire.

Most of the library-media centers have been setting up High-Tech Science and Mathematics Information Banks.

1. Approximately what percent of your new acquisitions (1983-84) were in the area of science and/or mathematics?

   ☐ 0-10% ☐ 11-30% ☐ 31-50% ☐ 51-70% ☐ 71-90% ☐ 90-100%

2. Do you have a special area in the library for the bank? Yes ☐ No ☐

3. Which of the following strategies have you employed to encourage use of the bank. Please check all that apply.

   a. Announcements at meetings. Please specify type of meeting. _____ ☐
   b. Word-of-Mouth ☐
   c. Memos ☐
   d. Flyers ☐
   e. Posters ☐
   f. Newsletter ☐
   g. Displays ☐
   h. Workshops ☐
   i. Special Projects ☐
   j. Other - please specify _____ ☐

4. Please rate teachers' use of the bank.

   High Degree ☐ Average ☐ Very Little ☐ Not Applicable ☐

5. Please rate teachers' use of the library-media center this year.

   More Than Last Year ☐ Same as Last Year ☐ Less Than Last Year ☐

6. Please rate students' use of the library-media center this year.

   More Than Last Year ☐ Same as Last Year ☐ Less Than Last Year ☐

7. Please briefly describe your record keeping methods for library use.

   _____

   _____

8. Other comments:

052284

Prepared by
Division of Quality Assurance

APPENDIX C

ORIENTATION MEETING AND MEDIA EXHIBIT OF SCIENCE AND MATHEMATICS MATERIALS

PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA
DIVISION OF LIBRARY SCIENCE
JEFFERSON ADMINISTRATION ANNEX
801 - 7TH STREET, S. W.
WASHINGTON, D. C. 20024

An Open Letter To All Teachers

Subject: School Library Resources Program
ECIA, Chapter II

Date: October 20, 1983

This is to urge your involvement in the evaluation and selection process of high quality science and mathematics materials for the library media collection in your school. These media may be print and non-print, such as books, tapes, kits, robotics, charts, models, filmstrips, and transparencies.

According to the National Commission on Excellence in Education's report "A Nation at Risk: The Imperative for Educational Reform", . . tools of learning and teaching should be upgraded and updated to assure more rigorous content and to reflect current applications of technology, the best scholarship, and research findings." Hence, the decision to specifically address the areas of science and mathematics for project expenditures this year.

Your library media center must play a vital role in helping you achieve your curricular objectives by housing sufficient resources to meet your students' needs and having these materials easily assessible for you to borrow and return as your needs dictate. I hasten to mention the various opportunities for an inter-disciplinary approach to the teaching and learning process whereby science and math materials lead to further explorations and inquiry in a number of disciplines. A student motivated by appropriate media depicting the human body may be jolted into acquiring the necessary skills in reading and math to pursue a medical career.

I am excited about the potential the school library resources project has and sincerely encourage you to review your Competency-Based Curriculum guides for objectives requiring additional support materials for the library media collection. The minutes spent selecting media now may save many hours of "teacher preparation" time later.

For further information about approved media selection tools, contact the librarian in your school, or call the Project Secretary, Ms. Shelia Goodwin, at 724-4951 or 724-4952.

Marie Harris

Marie Harris, Assistant Director
Library Science and Media Services
and Project Coordinator

smg

cc: Regional Superintendents
Assistants for Instruction
Principals
Librarians

Department of Library Science
Orientation and Media Exhibit

School Library Resources Program
Educational Consolidation Improvement Act, Chapter II

Martin Luther King Memorial Library

October 24, 1983

A G E N D A

9:15 REGISTRATION

Call to Order — Ms. Marie Harris, Project Coordinator

ANNOUNCEMENTS

Greetings — Ms. Katherine Wood, Librarian, Martin Luther King Memorial Library

Dr. Kyo R. Jhin, Assistant Superintendent, Office of Educational Technology

Overview of Project, FY 83-84

- Rationale
- Program Summary
- Purposes

Ordering Procedures

- Guidelines Governing Expenditures
- Form to Accompany All Orders
- Procedures for completing Forms 603-616
- Use of Catalogs and Media Selection Tools (1983-1984)

Selected Mathematics and Science Media
(A listing compiled by DCPS Elementary and Secondary Librarians)

Soliciting Teacher Support in the Selection Process
(An Open Letter)

Program Allotment (By School)

Questions

Closing Remarks and Acknowledgements

* * * * * * * * *

E X H I B I T S

APPENDIX D

RANDOM SAMPLE FOR SCHOOL LIBRARY RESOURCES
PROJECT QUESTIONNAIRES

RANDOM SAMPLE (25%) FOR SCHOOL LIBRARY RESOURCES
PROJECT QUESTIONNAIRES

	Library-Media Specialists			Teachers		
	Number of Questionnaires Sent	Number of Questionnaires Returned	Response Rate	Number of Questionnaires Sent	Number of Questionnaires Returned	Response Rate
Elementary	31	21*	67.7%	529	177	33.5%
Junior High	7	7*	100%	244	67	27.5%
Senior High	4	3	75%	295	22	7.5%
Career Development	2	1	50%	75	21	28%
Total	44	32	73%	1,143	287	25.1%

*Includes two blank forms with comments.

APPENDIX E

PLANNED USE OF HIGH-TECH SCIENCE AND MATHEMATICS INFORMATION BANKS

Sample of Responses From Library-Media Specialists
On Planned Use of High-Tech Science and
Mathematics Information Banks

Displays, advertisements and use of the High Tech Science and Mathematics Information Bank will encourage patrons to explore other areas of library materials.

****

Having already set up a computer learning center, these books will enhance the present collection and will stimulate further interest in science, math books specifically. While being integrated into the present center, the books will be indentified by a drawing of a robot labeled Science and Math Books. The robot wil draw the attention of both children and teachers. Once drawn over by the robot, they will proceed to check out and use the books. My highest hope is that these books will be just the element to motivate some students not only to enter the science fair, but to win first place.

****

This grant will provide a greater variety of print and nonprint media (including software for the Commodore 64) to support both individual and group projects in the areas of mathematics and science. We are in need of many resources; this is a beginning.

****

The materials were selected to correlate with the curriculum guides. We selected all nonprint media because the resource teachers feel the students need more visual aids in our building. These materials will also help replenish our collection destroyed by fire in 1981.

****

The High Tech Science and Mathematics Information Bank will be used as a motivational tool to attract reluctant students in these disciplines. We will set up a science and mathematics viewing and browsing area, and encourage greater student use of these materials by involving the mathematics and science teachers in planning activities for classes.

****

The concerned teachers requested that our High Tech Science and Mathematics Information Bank provide them with audiovisual materials to augment our small collection of materials in Science and Mathematics now available in our library. They feel that this will allow students to receive visual and auditory reinforcement when certain topics and concepts are taught. They will also allow for some individualization of instruction.

****

The "High Tech" Science and Mathematics Information Bank will be used as a part of the School Library Media Center program to promote greater and more effective utilization of the overall collection in the following ways.

A computer assisted instruction center is being set up in the media center to support competency based instruction in the areas of science, mathematics and computer literacy. The software being ordered will not only be used in the areas of drill and practice, but will also be used for the higher levels of thinking skills. The pupils will be able to analyze and evaluate existing programs and synthesize new programs that will support learning and instruction in the areas of mathematics, science and computer literacy. These will be added to the media center's information bank.

A program cartridge is being ordered that will allow the media specialist to program for easy information retrieval the Media Center's collection in specific areas of mathematics, science and computer literacy that correspond with the CBC objectives and specific skills (observe, classify order, demonstrate, define, measure, construct, describe, infer, illustrate).

The media specialist will be able to cross reference the items that are cataloged in areas other than 5000, 600, and 006 that will help with the mastery of a specific skill. Material housed outside of the media center can also be cross referenced.

The materials ordered with the Chapter 2 funds will be supported by the materials ordered through the regular funds.

All materials have been reviewed (seen) by the media specialist or reviewed favorably.

****

The Bank will be prominently displayed in the library. Library materials will be used to teach library skills. My principal will be asked to announce High Tech...Bank in his bulletin. Student reviews and drawings will be displayed in the halls and library. A favorite book contest will be held. Bibliographies will be distributed.

****

For several years, since a proposal was approved in the early '70's, the science collection has not been updated. Funds were spread among all the disciplines. This grant is the shot of adrenalin badly needed to fulfill the objectives of these two departments: to provide instruction for the development of higher level thinking skills; to provide theoretical and practical learning through the completion of independent projects; to provide interdisciplinary activities in math and science; to enable every student, regardless of talent and ability, to develop the ability and confidence to inquire.

****

The materials selected for this order will be used to update the science/math collection in an effort to help our students acquire more skills in problem-solving, high technology, decision-making and career exploration. Plans call for our 7th and 8th graders to participate in a special science/math program co-sponsored by the Washington Gas Co. beginning Spring, 1984. These materials will be used in this program and for our regular science/math curriculum.

****

In addition to updating the collections of books on math and science, this grant will allow flexibility in enlarging the psychology collection. Not only were current materials needed in the pure sciences, but also materials which will help students deal with their emotions, anxieties, hostilities and interpersonal relationships. Supplementing the regular budget, this grant can revitalize the collection of related and pure sciences.

****

This selection of books will revitalize my science/math collection which had copyright dates in the '60's'. The ten computers in our building have spurred an interest in computers. Many resources were ordered in this order on program writing, etc.

****

The allotment was used to: (1) purchase non-print materials in areas of anatomy and physiology for the nursing and dental areas; (2) to purchase non-print for business medical. The "High Tech Bank" will enhance the media program "highlighting" (thus attracting) the fact that the center is equipped for the health careers in this age of technology.

****

Since math and science are required in all of our technical and industrial trades, the High Tech Science and Mathematics Information Bank will be used to support the curriculum in the fourteen trade areas which are offered here. Shop related math/science; test-taking skills for the apprenticeship test and other job entry tests; basic skills for math/science; conceptual development and application skills will be greatly enhanced by media equipment materials.

****

APPENDIX F

SUMMARY OF LIBRARY-MEDIA SPECIALIST QUESTIONNAIRES

SUMMARY OF LIBRARY-MEDIA SPECIALIST QUESTIONNAIRE

1. Approximately what percent of your new acquisitions (1983-84) were in the area of science?

0-10%		11-30%		31-50%		51-70%		71-90%		91-100%		No Response		Total	
#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	3.3	3	10	3	10	2	6.7	6	20	13	43.3	2	6.7	30	100

2. Do you have a special area in the library for the bank?

Yes		No		No Response		Total	
#	%	#	%	#	%	#	%
10	33.3	17	56.7	3	10	30	100

3. Which of the following strategies have you employed to encourage use of the bank?

	#	%
a. Announcements at meetings	15	18.8
b. Word-of-Mouth	17	21.2
c. Memos	12	15
d. Flyers	2	2.5
e. Posters	1	1.2
f. Newsletter	6	7.5
g. Displays	11	13.8
h. Workshops	3	3.8
i. Special Projects	3	3.8
j. Others	5	6.2
No Response	5	6.2
Total	80	100

4. Please rate teachers' use of the bank.

High		Average		Very Little		NA		No Response		Total	
#	%	#	%	#	%	#	%	#	%	#	%
4	13.3	9	30	2	6.7	14	46.7	1	3.3	30	100

5. Please rate teachers' use of the library-media center this year (as compared to last year).

More		Same		Less		No Response		Total	
#	%	#	%	#	%	#	%	#	%
18	60	11	36.7	-	-	1	3.3	30	100

6. Please rate students' use of library-media center this year (as compared to last year).

More		Same		Less		No Response		Total	
#	%	#	%	#	%	#	%	#	%
22	73.3	7	23.2	-	-	1	3.3	30	99.9

APPENDIX G

SUMMARY OF TEACHER QUESTIONNAIRE RESULTS

SUMMARY OF TEACHER QUESTIONNAIRE RESULTS

1. Have you been aware of such a bank in your school's library-media center?

	Elementary		Secondary						Total	
			Junior High		Senior High		Career Development			
	#	%	#	%	#	%	#	%	#	%
Yes	59	33.9	37	52.8	9	40.9	15	71.4	120	41.8
No	104	59.8	24	34.3	13	59.1	6	28.6	147	51.2
N.R.	11	6.3	9	12.9	-	-	-	-	20	7
Total	174	100	70	100	22	100	21	100	287	100

2. Have you had the opportunity to use the bank?

	Elementary		Secondary						Total	
			Junior High		Senior High		Career Development			
	#	%	#	%	#	%	#	%	#	%
Yes	31	17.8	23	32.9	6	27.3	10	47.6	70	24.4
No	128	73.6	35	50	15	68.2	11	52.4	189	65.8
N.R.	15	8.6	12	17.1	1	4.5	-	-	28	9.8
Total	174	100	70	100	22	100	21	100	287	100

3. Please rate your use of the library-media center this year.

	More than last year		Same as last year		Less than last year		No Response		Total	
	#	%	#	%	#	%	#	%	#	%
Elementary	81	46.5	59	33.9	25	14.4	9	5.2	174	100
Junior High	36	51.4	21	30	1	1.4	12	17.1	70	99.9
Senior High	8	36.4	11	50	2	9.1	1	4.5	22	100
Career Development	9	42.9	5	23.8	7	33.3	-	-	21	100
Total	134	46.7	96	33.4	35	12.2	22	7.7	287	100

4. Please check in the first column all of the following types of materials that have been available in your library media center. Please check in the second column all of the following types of materials from the center that you have used this year.

Elementary Schools

Materials	Number and Percent of Teacher Responses							
	Available		Used		No Response		Total	
	#	%	#	%	#	%	#	%
a. Audio-Visual Teaching Aids Except Computers and TV	145	50.2	121	41.9	23	7.9	289	100
b. Books and Related	151	49.7	141	46.4	12	3.9	304	100
c. Computer Hardware and Software	41	21.6	19	10.0	130	68.4	190	100
d. Non-Instructional Machines and Related Materials	85	37.8	58	25.8	82	36.4	225	100
e. TV and Related	76	36.5	36	17.3	96	46.1	208	99.9
f. Manipulatives	72	31.3	38	16.5	120	52.2	230	100
g. Other (Please specify)	2	1.1	2	1.1	172	97.7	176	99.9

(Continued)

4. Please check in the first column all of the following types of materials that have been available in your library media center. Please check in the second column all of the following types of materials from the center that you have used this year.

Junior High Schools

Materials	Number and Percent of Teacher Responses							
	Available		Used		No Response		Total	
	#	%	#	%	#	%	#	%
a. Audio-Visual Teaching Aids Except Computers and TV	47	42.7	44	40.0	19	17.3	110	100
b. Books and Related	48	43.6	46	41.8	16	14.5	110	99.9
c. Computer Hardware and Software	5	7.8	5	7.8	54	84.4	64	100
d. Non-Instructional Machines and Related Materials	33	33.3	32	32.3	34	34.3	99	99.9
e. TV and Related	17	21.2	11	13.7	52	65.0	80	99.9
f. Manipulatives	13	15.7	15	18.0	55	66.3	83	100
g. Other (Please specify)	6	7.8	4	5.2	67	87.0	77	100

(Continued)

4. Please check in the first column all of the following types of materials that have been available in your library media center. Please check in the second column all of the following types of materials from the center that you have used this year.

Senior High Schools

Materials	Number and Percent of Teacher Responses							
	Available		Used		No Response		Total	
	#	%	#	%	#	%	#	%
a. Audio-Visual Teaching Aids Except Computers and TV	17	50.0	16	47.1	1	2.9	34	100
b. Books and Related	17	50.0	16	47.1	1	2.9	34	100
c. Computer Hardware and Software	5	20.8	5	20.8	14	58.3	24	99.9
d. Non-Instructional Machines and Related Materials	14	48.3	9	31.0	6	20.7	29	100
e. TV and Related	7	30.4	1	4.3	15	65.2	23	99.9
f. Manipulatives	7	30.4	2	8.7	14	60.7	23	99.8
g. Other (Please specify)	0	0.0	1	4.5	21	95.4	22	99.9

(Continued)

4. Please check in the first column all of the following types of materials that have been available in your library media center. Please check in the second column all of the following types of materials from the center that you have used this year.

Career Development Centers

Materials	Number and Percent of Teacher Responses							
	Available		Used		No Response		Total	
	#	%	#	%	#	%	#	%
a. Audio-Visual Teaching Aids Except Computers and TV	17	48.6	17	48.6	1	2.8	35	100
b. Books and Related	17	50.0	15	44.1	2	5.9	34	100
c. Computer Hardware and Software	8	38.1	1	4.8	12	57.1	21	100
d. Non-Instructional Machines and Related Materials	11	45.8	6	25.0	7	29.2	24	100
e. TV and Related	11	42.3	7	26.9	8	30.8	26	100
f. Manipulatives	7	30.4	4	17.4	12	52.2	23	100
g. Other (Please specify)	0	0.0	1	4.8	20	95.2	21	100

(Continued)

4. Please check in the first column all of the following types of materials that have been available in your library media center. Please check in the second column all of the following types of materials from the center that you have used this year.

All Schools

Materials	Number and Percent of Teacher Responses							
	Available		Used		No Response		Total	
	#	%	#	%	#	%	#	%
a. Audio-Visual Teaching Aids Except Computers and TV	226	48.3	198	42.3	44	9.4	468	100
b. Books and Related	233	48.3	218	45.2	31	6.4	482	99.9
c. Computer Hardware and Software	59	19.7	30	10.0	210	70.2	299	99.9
d. Non-Instructional Machines and Related Materials	143	37.9	105	27.8	129	34.2	377	99.9
e. TV and Related	111	32.9	55	16.3	171	50.7	337	99.9
f. Manipulatives	99	27.6	59	16.4	201	55.9	359	99.9
g. Other (Please specify)	8	2.7	8	2.7	280	94.6	296	100